Earnings Restatements, Reputation, and Financial Contracting: Evidence from Seasoned Equity Offerings*

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Abstract

We show that firms with past earnings restatements are subject to reputational penalties in contracting with investment banks for seasoned equity offerings (SEOs). Compared to both themselves prior to restatements and firms that have never restated earnings, restatement firms pay significantly higher underwriting fees (about 10~20% in relative terms or 50~100 basis points in absolute terms). The effect of past restatements on underwriting fees is primarily driven by restatements due to accounting irregularities rather than unintentional errors, and it is robust to controlling for issuer accounting information quality and pre-issue accruals management. The effect is also stronger for larger offerings and weakens with the passage of time since restatements and with corporate governance improvements at restatement firms. We further find that irregularity-restatement firms employ significantly more lead underwriters who form significantly larger syndicates, and that they are less likely to use the faster and cheaper accelerated underwriting method that bypasses or shortens the traditional book building process. Overall, our evidence supports the hypothesis that financial misrepresentation tarnishes firms' reputation and increases their contracting costs and that subsequent corporate governance improvements can help repair the reputational damage.

I. Introduction

Do firms suffer reputational penalties for failures in their financial reporting? The integrity of financial reporting by public corporations has long been a subject of significant importance to capital market participants and regulators, as transparent and truthful representation of firms' performance and financial conditions facilitates accurate pricing of securities and ensures an efficient allocation of capital to its most profitable use in the economy. The high-profile corporate scandals at Enron, WorldCom, and several other large corporations in the early 2000s have led to the adoption of more stringent listing requirements by NYSE and NASDAQ and the passage of the Sarbanes-Oxley Act of 2002. Reports published by the United States General Accounting Office (GAO) in 2003 and 2007 highlight that financial misreporting is a more widespread problem than the few major cases may suggest; the number of companies that announced earnings restatements has been on the rise from 35 in 1997 to 225 in 2001 and then to 657 in 2005.

Previous research shows that firms that manipulated their earnings or committed financial fraud or misrepresentation lose substantial market value upon the disclosure of their malfeasance (e.g., Dechow, Sloan, and Sweeney (1996), Anderson and Yohn (2002), Palmrose, Richardson, and Scholz (2004), and Karpoff, Lee, and Martin (2008)).[1] Karpoff, Lee, and Martin estimate that the monetary penalties imposed by the legal and regulatory systems and the adjustment of market prices to more accurate financial information together can only account for about one third of the value loss. They attribute the remaining majority of the value loss to reputational penalties, defined as the decrease in the present value of a firm's cash flows as various contracting parties of the firm change the terms in which they deal with the company.

[1] Specifically, Dechow et al. find that firms subject to SEC enforcement actions on average lose 9% of their market value upon the initial disclosure of earnings manipulation, Anderson and Yohn report that firms announcing earnings restatements see their stock prices drop by an average 4%, Palmrose et al. document average cumulative abnormal returns of about -9% around restatement announcements, and Karpoff et al. find that, on average, firms subject to SEC/DOJ enforcement actions for financial misrepresentation lose 38% of their market values upon the revelation of their misconduct.

In this paper, we aim to provide evidence on the occurrence and form of reputational penalties for financial misrepresentation by examining how firms' prior incidence of reporting violations affects the terms of their contracts with investment banks in seasoned equity offerings (SEOs). Firm engage investment banks in a variety of corporate finance activities, such as security issuance, mergers and acquisitions, and restructuring. SEOs are an important avenue through which firms obtain funding for investments and growth. As they are characterized by adverse selection (Myers and Majluf (1984)), SEOs also provide an ideal setting for studying reputation and contracting.

There are several reasons why investment banks may consider issuing firms' past misreporting when negotiating terms of the underwriting contracts. First, an issuing firm's past misreporting reduces the credibility of its financial statements and heightens the information asymmetry surrounding the issuer. Consistent with this argument, firms restating their earnings experience significant increases in analyst forecast dispersion and declines in earnings informativeness (Hribar and Jenkins (2004) and Wilson (2008)). As a result, the due diligence process becomes more challenging for underwriters, since they cannot rely as much on information furnished by the issuing firm and will need to expend more resources on fact finding and verification.

Second, by entering into an underwriting contract, investment banks implicitly certify the value of issuers' stock to the capital market. If the issuers were later found out to have misled investors through an inaccurate portrait of their financial conditions, both the underwriters and the issuing firms would be subject to shareholder lawsuits and potentially liable for investor losses. If issuers with past reporting problems are surrounded by greater information asymmetry and the true value of their shares is more difficult for outside parties to determine, investment banks will expose themselves to higher legal liabilities by underwriting the issues of these companies, especially the ones that have not addressed adequately the internal control and corporate governance weaknesses that led to the misreporting.

Third, to the extent that investors are less receptive to new share offerings of firms with past misreporting, underwriters will bear higher underwriting risk and may have to exert more efforts in marketing and placing these shares. Based on all these considerations, our main hypothesis is that ceteris paribus, investment banks charge higher fees for underwriting SEOs of firms with prior financial misreporting as compensation for the extra work and risk involved. The higher underwriting fee can be considered as one type of reputational penalties that misreporting firms have to bear when they contract with financial intermediaries and access the capital market, and it is in addition to the depressed share price at which these firms sell their equity.

Evidence from a sample of 2,337 firm-commitment seasoned equity offerings (SEOs) by U.S. firms during the period of 1997 to 2008 is consistent with our conjecture. Specifically, we find that firms with past earnings restatements pay significantly higher underwriting spreads, in comparison both to themselves prior to restatements and to firms that never restated earnings, and that the effect of restatements on underwriting fees is primarily driven by restatements caused by accounting irregularities, i.e., deliberate manipulation, rather than unintentional errors. The difference in underwriting fees due to restatements is about 10~20% in relative terms and 50~100 basis points (bps) in absolute terms. These results suggest that investment banks are able to discriminate between restatements of different nature and severity, and firms that committed more serious financial misreporting suffer greater reputational penalties. In addition, our finding is robust to controlling for the effect of accruals quality on underwriting fees (Lee and Masulis (2009)), suggesting that the effect of restatements is beyond that of observable metrics of issuer accounting information quality, and captures the consequence of tarnished reputation.

Further analysis reveals that the effect of restatements on underwriting fees is stronger in SEOs that attempt to issue a larger number of shares relative to shares outstanding. This is consistent with the idea that larger offerings by restatement firms involve especially greater underwriting risk and efforts. We also uncover evidence that the effect of restatements is more pronounced in the first few years after restatements and weakens with the passage of time since

the restatements, suggesting that firms can rehabilitate their reputation over time. It appears that restatement firms can also repair their reputation and regain the trust of investors by implementing corporate governance improvements. Specifically, we find that the effect of restatements on underwriting fees decreases as restatement firms increase the percentage of independent directors on their boards and replace a larger percentage of audit committee members from prior to restatement announcements.

Variations in other dimensions of the underwriting contracts are also consistent with restatement firms suffering reputational damage and facing more obstacles and weaker demand in equity issuance. Specifically, we find that restatement issuers employ significantly larger underwriting syndicates with more lead managers and that they are more likely to utilize an extensive book building process than the faster and cheaper accelerated underwriting method that either bypasses or substantially curtails the conventional book building. Consistent with the evidence from the gross spread analysis, both of these results are driven by restatements due to accounting irregularities, and suggest that offerings by restatement firms entail greater due diligence, marketing, and placement efforts from underwriters.

In addition to the characteristics of underwriting contracts between issuing firms and investment banks, we examine the stock price reaction to SEO announcements as another gauge of reputational penalty. The adverse selection model developed by Myers and Majluf (1984) posits that managers have incentives to sell overvalued equity to prospective investors, and thus their equity issuing decision sends a negative signal about the intrinsic value of their company's stock. This prediction has been well supported by numerous empirical studies, which find that the average SEO announcement effect is around negative 2% and firms facing greater information asymmetry experience more negative stock price reactions (see Eckbo, Masulis, and Norli (2007) for a comprehensive literature review). Consistent with past financial misreporting making a firm's financial disclosure less trustworthy and exacerbating the information asymmetry between corporate insiders and outside investors, we observe steeper stock price declines upon the SEO

announcements by restatement firms, again primarily those that have intentionally manipulated their earnings. The stock price decline is costly to issuing firms both because it represents a permanent loss of firm market value and because it forces firms to sell their equity at a lower price.

Our study makes three contributions to the literature. First, it represents the first attempt to investigate the impact of a firm's past financial misrepresentation on its contracting with investment banks. Our findings of higher underwriting fees, larger underwriting syndicates, and lengthier and costlier underwriting process associated with SEOs of restatement firms serve as examples of the reputational penalties defined by Karpoff et al. (2008) that misreporting firms have to pay in contracting with outside parties. To the extent that firms anticipating especially severe penalties will shun away from accessing the equity market, the effects we uncover are a lower bound of the penalties levied on restatement firms in equity issuance. Our analysis also yields a number of cross-sectional variations in the reputational penalties for financial misreporting. In particular, we find that reputational penalties are higher for more egregious restatements and that tarnished reputation can be rehabilitated through corporate governance improvements.

Previous studies by Hribar and Jenkins (2004) and Graham, Li, and Qiu (2008) examine investor reactions to accounting restatements, and find that shareholders require higher implied costs of equity and creditors demand higher interest rates and more restrictive terms on bank loans. Our paper complements and extends theirs in two important ways. First, as a nexus of contracts, firms interact with many entities, and investors, while important, are just one group of economic agents with which firms have relationships. By focusing on investment banks, we are able to shed direct light on the question if and how other contracting parties of firms respond to corporate disclosures of financial misreporting. Second, by studying SEO issuance costs rather than costs of capital, we do not rely on an equilibrium asset pricing model. This is significant because any empirical attempt to link past financial misreporting and expected returns is a test of

the joint hypothesis that past financial misreporting is priced and the underlying asset pricing model being used is correctly specified and estimated.

Second, we contribute to the literature on SEO underwriting costs by highlighting the importance of the reputation of the issuer's financial reporting quality. Prior research shows that firms with greater information asymmetry (Altinkilic and Hansen (2000)), lower quality accounting information (Lee and Masulis (2009)), and poorer stock market liquidity (Butler, Grullon, and Weston (2005)) incur higher flotation costs when issuing seasoned equity. Our evidence indicates that the issuer's financial reporting integrity is another factor that investment banks take into account in pricing underwriting contracts. Although issuers with prior reporting violations are likely to be associated with greater information asymmetry, poorer financial disclosure, and lower stock market liquidity, the effect of restatements on underwriting fees that we document is incremental to the effects of those other determinants.

Finally, our findings highlight the importance of differentiating among earnings restatements based on their causes. Hennes, Leone, and Miller (2008) develop a sophisticated classification scheme to separate restatements into those due to accounting irregularities and those due to unintentional errors, and show that their partition significantly enhances the power of tests to detect the effect of restatements on executive turnovers. In a different setting, we find highly consistent results throughout our analysis that it is the irregularity-related restatements that are significantly related to SEO underwriting fees, underwriting syndicate structure, underwriting method, and announcement returns. This lends further support to the validity of Hennes et al.'s methodology.

The rest of the paper is organized as follows. Section II describes the construction of the SEO sample and the identification of restatement firms. Section III presents the results from our empirical analysis. Section IV concludes.

II. Sample construction

We begin our sample construction by extracting from the SDC Global New Issues database all firm-commitment seasoned equity offerings (SEOs) by U.S. firms from January 1, 1997 to December 31, 2008. For each SEO in the initial sample, we require that the offering size is at least $10 million, the offer price is at least $5, the percentage of secondary shares in the offering is less than 100%, and the issuer has financial statement information available from Compustat and stock return data available from CRSP. We also exclude units, rights, and closed-end fund offerings, as well as simultaneous international offerings.[2] The final sample consists of 2,337 SEOs. Table 1 presents the sample distribution by offer year. The number of SEOs is at the highest level in 1997, the beginning of our sample period, but declines significantly after that and drops to its lowest level in 2000 and 2001, coinciding with the burst of the internet bubble. The offering activity starts to recover from 2002 and reaches another high point of 252 issues in 2004. Then it goes gradually down to 146 offerings in 2008, the last year of our sample period and also the year when the stock market plummeted due to the financial crisis.

Our sample of restatement firms comes from two reports issued by the U.S. General Accounting Office (GAO) in 2003 and 2007, which include a list of companies that restated their financial statements during the period of 1997 to 2006. According to GAO, "a restatement occurs when a company, either voluntarily or prompted by auditors or regulators, revises public financial information that was previously reported." The GAO sample includes both financial reporting frauds or irregularities (intentional misreporting) and accounting errors (unintentional misstatements). Hennes, Leone, and Miller (2008) partition the restatements by classifying a restatement as an irregularity if it satisfies at least one of the three criteria: (i) variants of the words "irregularity" or "fraud" were explicitly used in restatement announcements or relevant filings in the four years around the restatement; (ii) the misstatements came under SEC or DOJ investigations; and (iii) independent investigations were launched by boards of directors of

[2] SEOs with a simultaneous international offering involve two different underwriting syndicates, one for the domestic market and one for the international market, and the issuers sometimes become cross listed on a foreign exchange as part of the process (Chaplinsky and Ramchand (2000) and Wu and Kwok (2002)).

restatement firms. They demonstrate the importance and effectiveness of their classification scheme by showing that compared to error restatements, irregularity restatements are met with significantly more negative announcement returns (on average: -14% vs. -2%), are followed by shareholder class action lawsuits at a significantly higher rate, and lead to significantly more CEO/CFO turnovers.

We match the samples of restatements and seasoned equity offerings, and find that 202 of the 2,337 SEOs are by restatement firms after their restatements, while the rest are either by firms that have never restated earnings or by restatement firms prior to their restatements.[3] The small number of offerings by restatement firms after restatements is consistent with Chen, Cheng, and Lo's (2009) finding that firms face greater financial constraints after restatements. As shown in Table 1, 40 of these 202 SEOs are issued by companies whose restatements are due to managers' intentional misreporting, while 162 are issued by firms whose restatements are due to unintentional accounting errors.

III. Empirical results

A. Effect of restatements on underwriting fees

Our main test is to examine whether investment banks charge higher underwriting fees for SEOs by companies that have restated their financial statements, especially when restatements are due to managerial intentional misreporting. Our measure of underwriting fee is the gross spread per share scaled by the offer price. In firm commitment offerings, underwriters purchase shares from issuing firms at a discount and sell the shares to investors at the offer price. The gross spread is the difference between the offer price and the purchase price paid by underwriters to issuing firms. Table 2 presents the summary statistics for the whole sample, as well as for

[3] Since the GAO reports identify firms that restated earnings during the period of 1997 to 2006, it is possible that some SEOs in our sample are by firms that restated earnings prior to 1997 or after 2006. These SEOs will be classified as offerings by non-restatement firms, and their presence would bias against us finding support for our hypothesis that SEOs of restatement firms are associated with higher issuance costs.

different sub-samples. For the full sample, the mean and median percentage gross spread are 4.9% and 5%, similar to what Butler, Grullon, and Weston (2005) and Lee and Masulis (2009) find for their samples. The average (median) offering size measured by the principal amount is $170 ($80) million, representing about 22.5% (17.7%) of the pre-issue market value of equity for the average (median) issuer in our sample.

When we partition the sample into SEOs by firms that have restated earnings and those by firms that have not, we find that the former are associated with slightly lower gross spread. For example, the gross spread of SEOs by restatement firms have a mean (median) of 4.5% (4.8%), while the mean (median) gross spread of offerings by non-restatement firms is 5.0% (5.0%). This is most likely driven by the fact that the principal amount of SEOs by restatement firms tends to be much larger and that there is a well documented negative relation between percentage gross spread and principal amount because of the economy of scale (see, e.g., Altinkilic and Hansen (2000), Butler, Grullon, and Weston (2005), and Lee and Masulis (2009)). The average (median) offering size by restatement companies is $442 ($116) million, while the average (median) principal amount by non-restatement issuers is only $145 ($77) million. Moreover, firms that restate due to deliberate manipulations make the largest offerings among all the sub-samples, with the mean (median) offering size about $761 ($176) million. Therefore, in order for us to draw reliable inference on the effect of past restatements on underwriting fee, it is important to control for offering size and other known determinants of gross spread in a multivariate regression framework.

We classify these control variables into two groups: firm characteristics and issue characteristics. The former group includes firm size, leverage, Tobin's q, return on assets (ROA), stock return volatility, share turnover, and NYSE listing. The second group includes whether an issue is shelf registered, the proportion of secondary shares offered, lead underwriter reputation, as well as offering size measured by the logarithmic transformation of the principle amount.

Larger firms are likely to have more analyst coverage and attract more institutional shareholders. Greater analyst coverage reduces the information asymmetry between firms and outside investors. A more transparent information environment is conducive to elicit more demand from investors for a firm's equity offering. Therefore, underwriters may find it easier to market and place offerings by larger firms and thus charge a lower gross spread. We measure firm size by the logarithmic transformation of the issuer's book value of total assets at the pre-issue fiscal year end (Compustat data 6).

Since underwriters guarantee the success of an offering in a firm-commitment issue by agreeing to purchase the entire offering from the issuer at a fixed price, they will take on more price risk in SEOs of firms with greater stock price fluctuations. To compensate for the additional risk, we expect investment banks to charge higher fees for such issues. Consistent with this, Butler, Grullon, and Weston (2005) and Lee and Masulis (2009) both document that underwriting fees are higher for firms with higher stock return volatilities. We measure the standard deviation of daily stock returns during the 250 trading days prior to the offer date. To the extent that firms with higher stock return volatilities may be associated with greater information asymmetry, underwriters may find that certifying the value of these companies entails more efforts and bring more litigation risk. As a result, they demand higher compensation for their services.

Firm leverage is defined as the sum of long-term debt (data 9) and short-term debt (data 34) over the book value of total assets at the pre-issue fiscal year end. Since highly levered issuers are associated with higher probabilities of financial distress and are likely to use offer proceeds to repay debt rather than take advantage of profitable growth opportunities, investors may be less enthusiastic about the SEOs of these firms. As a result, placing these offerings requires greater efforts from and carries more risk to underwriters, who in response charge higher fees.

The adverse selection problem for companies with higher Tobin's q tends to be less of a concern, since these firms are more likely to have profitable growth options. We expect that shareholders are more receptive to the equity offerings from firms with more profitable growth

options. As a result, underwriters would charge lower fees for these issuers. We define Tobin's q as the ratio of an issuer's market value of assets over its book value of assets at the pre-issue fiscal year end, where the market value of assets is computed as the book value of assets minus the book value of common equity (data 60) plus the market value of common equity (data 25 x data 199).

Butler, Grullon, and Weston (2005) argue that underwriters face lower inventory risk when placing shares that are liquid and they show that stock liquidity has a negative impact on gross spread. To control for the market liquidity of a stock, we include share turnover as an explanatory variable for gross spread. Share turnover is defined as the ratio of the average daily trading volume during the 250 trading days prior to the offer date over the number of shares outstanding.[4]

Investment banks may find it easier to place shares listed on the NYSE, since firms trading on the NYSE tend to have a larger shareholder base. To control for this possibility, we include an indicator for NYSE listing in the regression model of gross spread.

With respect to issue-specific characteristics, we include an indicator for shelf registrations, a measure of lead underwriter reputation, and the percentage of secondary shares in an offering. Autore, Kumar, and Shome (2008) find that SEOs using shelf registrations have lower underwriting fees. More reputable underwriters may provide better-quality service and can charge a higher spread if their service is in high demand. Alternatively, if higher-ranked underwriters are able to conduct the underwriting in a more efficient manner, they may be able to pass some of the cost savings onto the issuers, resulting in a lower spread. We measure the reputation of each SEO's lead manager by its Carter and Manaster (1990) ranking updated by Jay

[4] For stocks listed on Nasdaq, we follow Gao and Ritter's (2010, Appendix B) algorithm to adjust their trading volumes for the different ways in which Nasdaq and NYSE-Amex volumes are computed. We thank Jay Ritter for suggesting this approach. Our results are robust if we simply divide Nasdaq volumes by two.

Ritter and made available on his website.[5] For SEOs with multiple lead managers, we use the average ranking of these managers. Secondary shares are shares owned by existing shareholders, normally insiders of issuing firms. The effect of secondary shares on underwriting fees depends on the motive behind insider selling. If insider selling is mostly for liquidity needs, we do not expect it to have any bearing on underwriting fees, but if insiders sell to take advantage of favorable price levels, the adverse selection effect of their action may make an successful offering more difficult and call for higher underwriting compensation. Finally, we also control for calendar year fixed effects and Fama-French 12-industry fixed effects to account for any time-specific or industry-specific factors that could influence underwriting fees.

We present the coefficient estimates of our regression model of underwriting gross spread in Table 3. In parentheses are two-sided *p*-values based on standard errors adjusted for heteroskedasticity (White (1980)) and firm clustering (Petersen (2009)). The dependent variable is the log transformation of percentage gross spread.[6] In column (1), our key explanatory variable is an indicator variable, *restatement*, that is equal to one for SEOs by firms that have restated earnings at the time of the offering, regardless of whether the restatements are due to errors or irregularities. The coefficient estimate of the "restatement" dummy variable is -0.025, insignificantly different from zero with a *p*-value of 0.479.

In column (2) of Table 3, we replace the "restatement" dummy with two indicator variables, one for restatements caused by errors, and the other for restatements due to irregularities. We find that the indicator for errors has a negative and insignificant coefficient, but the indicator variable for irregularities has a positive coefficient of 0.099, which is highly significant with a *p*-value of 0.002. This suggests that firms that committed deliberate earnings manipulations suffer severe reputational penalties and investment banks charge higher fees for

[5] Loughran and Ritter (2004) use this ranking in their study of time-series variations in IPO underpricing.
[6] The logarithmic transformation offers the convenience that the coefficient estimates can be interpreted as the percentage change in gross spread per one-unit increase in independent variables, and this is especially convenient for dichotomous explanatory variables. Our results are robust to using the percentage spread as the dependent variable.

these firms' SEOs to compensate for the greater underwriting efforts and risk involved. In terms of the economic significance of the coefficient, it appears that ceteris paribus, irregularity-restatement firms pay 9.9% higher underwriting fees for their SEOs, and this translates into 50 bps for the typical SEO in our sample with a 5% (500 bps) gross spread.

The effect of irregularity-induced restatements on underwriting fees is even more striking when we introduce issuer fixed-effects in column (3) to control for any time-invariant firm characteristics that might be responsible for the effect of restatements uncovered by the regression in column (2). We find that the indicator for error-induced restatements is still not significant, and the indicator for irregularities has a positive coefficient that is significant with a *p*-value of 0.03. Comparing to the results in column (2), the coefficient of the irregularity dummy nearly doubles in magnitude to 0.192. This suggests that compared to themselves prior to restatements, firms that intentionally misstated financial reports have to pay almost 20% higher underwriting fees, which translates into 100 bps in spread.

With respect to the control variables, their coefficients are largely consistent with the evidence in Butler, Grullon, and Weston (2005) and Lee and Masulis (2009). Specifically, as shown in column (2), offering size has a significant and negative effect on gross spread, as do firm size and Tobin's q, while underwriters charge lower fees for firms with higher stock market liquidity, lower stock return volatility, and a NYSE listing. Consistent with Autore, Kumar, and Shome (2008), we also find that shelf registered offerings are associated with significantly lower underwriting spreads.

B. Cross-sectional variation in the effect of restatements

So far we have shown that firms that previously restated their earnings due to accounting irregularities bear a significant reputational penalty in the form of higher underwriting fees when they access the capital market via seasoned equity offerings. In this section, we explore potential cross-sectional variations in the effect of restatements to add more texture to our evidence.

We first examine whether the restatement effect varies with offering size. In their study of firm stock market liquidity and SEO issuance costs, Butler, Grullon, and Weston (2005) argue and show that the effect of liquidity is more pronounced for larger offerings. Similarly, restatement firms may face a steeper reputational penalty in larger SEOs, as in these issues underwriters have to exert even more efforts and bear even greater risk. To test this hypothesis, we create two indicator variables, one for SEOs whose relative size, defined as the number of shares offered divided by the pre-issue number of shares outstanding, is above sample median and the other for SEOs whose relative offer size is below sample median. In light of the evidence in Table 3, we focus exclusively on irregularity restatements and interact the irregularity restatement dummy with each of the two indicator variables. We then re-estimate the gross spread regression with the two interaction terms as key explanatory variables. Results presented in column (1) of Table 4 support our conjecture. The significantly positive effect of irregularity restatements on underwriting fees is mostly concentrated in larger deals, while the effect, albeit still positive, is insignificant in smaller deals.

In addition to offering size, we also examine whether the restatement effect depends on how recent a restatement is relative to an offering. We expect the effect to weaken as more time lapses since the most recent restatement, as firms are found to take steps to improve their corporate governance practice that led to financial misreporting and to regain investor confidence (Farber (2005) and Cheng and Farber (2008)). To the extent that the restatement effect may not weaken over time in a linear fashion, we create two indicator variables, one for SEOs taking place within three years of the most recent restatements and the other for SEOs happening more than three years after the most recent restatements.[7] We then interact the irregularity restatement dummy with each of the two newly created indicator variables and include the interaction terms as our key explanatory variables in the gross spread regression. Results in column (2) of Table 4

[7] Farber (2005) finds that fraud firms exhibit governance characteristics similar to or better than non-fraud firms three years after the fraud revelation.

show that investment banks charge significantly higher (about 16%) underwriting fees only on SEOs happening within three years of a restatement. This is consistent with our prediction and suggests that the reputational penalty on restatement firms indeed lessens over time.

In the last inquiry of this section, we directly examine whether restatement firms can refurbish their tainted reputation and mitigate the reputational penalty by making corporate governance improvements. Specifically, for each irregularity-restatement issuer in our sample, we search its proxy statements and measure (i) the change in the percentage of independent directors on its board from immediately prior to the restatement announcement to immediately prior to the SEO announcement and (ii) the percentage of audit committee members replaced from immediately prior to the restatement announcement to immediately prior to the SEO announcement.[8] We interact each of the two corporate governance improvement measures with the irregularity-restatement dummy and include the interaction term as an additional explanatory variable in the gross spread regression.

Table 5 presents the regression results. In column (1), we find that the irregularity-restatement dummy itself continues to have a significant and positive coefficient, but its interaction with the change in board independence has a significantly negative coefficient, suggesting that increasing board independence can reduce the additional underwriting fees that restatement firms have to pay for their SEOs. It appears that reconstituting the audit committee has a similar effect on underwriting fees, evidenced by the significantly negative coefficient on the interaction between the irregularity-restatement dummy and the percentage of audit committee members replaced (see column (2)). However, the governance improvements are unlikely to completely eliminate the reputational penalty imposed on restatement issuers. The change in the percentage of independent directors has a median of around 0.07 with an inter-quartile range of about 0.21, while the percentage of audit committee members replaced has a median of 0.45 with an inter-quartile range of 0.55. These numbers, combined with the magnitude

[8] During our sample period, audit committees of most firms are fully independent.

of the coefficient estimates in Table 5, imply that a large majority of the restatement issuers still pay higher underwriting fees despite the post-restatement governance changes implemented.

C. Controlling for issuer governance characteristics

Financial restatements, especially those due to mangers' deliberate manipulation of earnings, represent a major form of agency problems between managers and shareholders. As such, many researchers have investigated whether restatement firms are associated with poor corporate governance and managerial incentives, but the evidence has been rather mixed (see, e.g., Beasley (1996), Dechow, Sloan, and Sweeney (1996), Agrawal and Chadha (2005), Farber (2005), Larcker, Richardson, and Tuna (2007), and Baber, Kang, Liang, and Zhu (2009)). Nevertheless, to ensure that the effect of restatements on underwriting fees we identify does not simply proxy for issuer governance effects, we control for an issuer's internal and external governance characteristics at the time of the offering in the gross spread regression.

Toward that end, we merge our sample of SEOs with the IRRC database to obtain information on firms' anti-takeover provisions (ATPs) and board characteristics. In column (1) of Table 6, we control for the issuer's Gompers, Ishii, and Metrick (GIM, 2003) index based on 24 ATPs, and in column (2), we control for board size, the percentage of independent directors, and CEO/Chairman duality, which is an indicator variable equal to one if the CEO is also the chairman of the board and zero otherwise. Since IRRC covers mostly large companies while our sample spans a wider spectrum of firm size, the number of observations used in these two regressions is substantially smaller than that in previous tables. Nevertheless, we find that the coefficient on the irregularity-restatement dummy continues to be positive and significant, and its magnitude actually becomes much larger. The governance variables we control for, on the other hand, fail to enter significantly in the gross spread regressions. These findings suggest that the effect of restatements is not driven by issuer corporate governance.

D. Controlling for issuer accounting information quality

A recent study by Lee and Masulis (2009) finds that seasoned equity issuers with lower accruals quality pay higher underwriting fees. If firms with past financial reporting problems continue to manage earnings aggressively through accruals, it is possible that the positive relation between irregularity and underwriting fees could be attributed to accrual quality. We address this potential "omitted variable" problem by controlling for two measures of accruals quality.

The first measure is the absolute value of the issuer's pre-SEO abnormal accruals. We follow the prior literature and estimate discretionary accruals using a modified Jones (1991) model specified as follows:

$$TA_{it}/A_{it-1} = \beta_1 \times (1/A_{it-1}) + \beta_2 \times [(\Delta SALES_{it} - \Delta REC_{it})/A_{it-1}] + \beta_3 \times (PPE_{it}/A_{it-1}) + e_{it},$$

where TA_{it} is firm i's total accruals in year t, computed using the statement of cash flows information as the difference between earnings before extraordinary items and discontinued operations (Compustat data 123) and operating cash flows from continuing operations (data 308 – data 124). Hribar and Collins (2002) show that accruals estimated this way are more accurate than those estimated based on successive balance sheets.[9] A_{it-1} is the book value of total assets (data 6) at the beginning of year t, $\Delta SALES_{it}$ is the change in sales (data 12) during year t, ΔREC_{it} is the change in accounts receivable (data 2) during year t, and PPE_{it} is the book value of property, plant, and equipment (data 7) in year t.

We estimate the modified Jones model cross-sectionally using all Compustat firms for each year and Fama-French 48-industry cohort that has at least 10 observations. The modified-Jones model discretionary accruals are simply the residuals from the regressions. Kothari, Leone, and Wasley (2005) show that performance can be correlated with the discretionary accruals estimated from the variants of the Jones model and the reliability of inferences can be enhanced by using performance-matched discretionary accruals. For each company in our sample, we select a control firm in the same Fama-French industry with the closest return on assets (ROA)

[9] Our results are robust to accruals estimated using balance sheet data.

computed as the ratio of net income (data 172) over the book value of total assets (data 6) at the end of the pre-SEO fiscal year. The performance-matched discretionary accrual is defined as the difference between the sample firm's modified-Jones model discretionary accrual and the matched firm's modified-Jones model discretionary accrual.

We control for accruals quality by adding the absolute value of the performance-adjusted discretionary accrual in the regression model of gross spread. Our sample size is reduced to 1,254 because we cannot estimate discretionary accruals for about half of the sample due to lack of data. The regression results are shown in column (1) of Table 7. Consistent with Lee and Masulis (2009), the coefficient of the accrual quality measure is significant and positive. More importantly, we continue to find significantly positive coefficients for the irregularity dummy variable, even in this smaller sample.

Our second proxy for accruals quality is a measure developed by Dechow and Dichev (2002), namely, the standard deviation over the previous five years of a firm's annual accruals unexplained by cash flows in the current year, prior year, and next year. We control for this alternative measure in column (2) of Table 7. We find that it has a significant and positive effect on gross spread, but the coefficient on the irregularity restatement dummy remains significantly positive.

E. Correcting for self-selection bias

In addition to the "omitted variable" problems addressed in the preceding two sections, we recognize that a self-selection bias potentially complicates our analysis since firms issuing SEOs are not a random sample. This issue could be especially relevant in our setting, since our tests are to identify the effect of a firm's past financial misreporting on its SEO issuance costs, and past financial misreporting is likely to impact the firm's likelihood of issuing seasoned equity in the future.

To correct for any potential self-selection bias, we adopt the Heckman (1978) two-step procedure. In the first step, we estimate a probit model using all COMPUSTAT firms with necessary data during our sample period to predict the likelihood of a firm issuing seasoned equity in a given year. The dependent variable is equal to one if a firm issues seasoned equity during a year according to the SDC and zero otherwise. The explanatory variables include the dummy variables for error and irregularity restatements, firm size, leverage, Tobin's Q, ROA, stock return volatility, the ratio of capital expenditure to the book value of total assets, the ratio of corporate cash holding to the book value of total assets, a dividend paying status dummy, and the buy-and-hold market-adjusted return over the previous year. Other than the two restatement dummy variables, the model specification is very similar to that used by DeAngelo, DeAngelo, and Stulz (2010). Untabulated estimation results show that firms with irregularity-induced restatements are less likely to issue seasoned equity, as are dividend-paying firms and firms with higher stock return volatilities. On the other hand, larger and more levered firms and firms that have higher Tobin's Q, ROA, capital expenditure, and cash holdings are more likely to issue seasoned equity.

In the second step of the Heckman procedure, we construct an inverse Mills' ratio (IMR) based on the coefficient estimates from the first-step probit model, and include the IMR as an additional explanatory variable in the gross spread regression. Table 8 presents the estimation results. We find that the IMR has a significantly negative coefficient, consistent with the intuition that firms that ex ante are more likely to issue seasoned equity are associated with lower underwriting fees. More important for our purpose, the irregularity-restatement dummy still has a significant and positive coefficient, whose magnitude is slightly larger than in Table 3. Therefore, we conclude that our results are robust to correcting for any self-selection bias.

F. Effect of restatements on underwriting syndicate size

In this section, we design an auxiliary test to the gross spread analysis and examine how past restatements by issuing firms impact the size of underwriting syndicates. Our hypothesis is that if a firm's prior financial misreporting tarnishes its reputation in the capital market and makes its equity offering unappealing to investors, the firm is likely to enlist the service of more underwriters so as to tap into a broader investor base through underwriters' connections and ensure the successful placement of its offering. Lead underwriters may also have the incentive to bring more investment banks into the underwriting syndicate to share the potentially heavier work load and greater risk associated with underwriting SEOs by firms with financial reporting transgressions.

To test this prediction, we examine both the number of lead underwriters and the number of all syndicate members in relation to issuer past restatements, and present the results in Table 9. The regression models are largely the same as those in Table 3, except that the dependent variable is the number of syndicate members in Panel A and the number of lead underwriters in Panel B. We find that SEOs by firms with past restatements due to irregularities are underwritten by significantly larger syndicates with more lead managers than other SEOs. All else being equal, irregularity-restatement firms' SEOs on average have 0.893 more managers and 0.415 more lead underwriters, and both numbers are economically significant given that the average syndicate has about 4 underwriters and 1.4 lead managers. These results suggest that offerings by firms with irregularity-induced restatements indeed require greater efforts and risk sharing by underwriters.

G. Effect of restatements on offering methods

In keeping with most of the SEO literature, our analysis thus far focuses on firm-commitment underwritten offerings that involve the conventional book-building process through which the issuers and underwriters gauge the interest of institutional investors and drum up the demand for the new issues. Since the turn of the century, however, a new breed of SEOs that either bypass or significantly shorten the traditional book building process have been gaining

popularity (Bartolotti, Megginson, and Smart (2008) and Gao and Ritter (2010)). These issues include bought deals, block trades, and accelerated book-built offers, and collectively are called accelerated offers. [10] Compared to conventional offers, accelerated offers are conducted by smaller underwriting syndicates, completed much more quickly, and associated with lower underwriting costs, since they do not demand from underwriters as much due diligence, marketing, and placement efforts as conventional offerings do (Bartolotti et al. (2008)). Despite the speed and cost advantages, an accelerated offering is not suitable for all issues or issuers. Gao and Ritter (2010) examine the factors driving SEO firms' choice between the accelerated and conventional underwriting, and find that the accelerated underwriting is more common for smaller offerings and for issuers with less information asymmetry and more elastic demand curves for their stock.

To the extent that firms with past restatements are surrounded by severe information asymmetry and their shares are expected to face weak demand from investors, their SEOs would benefit from an extended book building process, which can generate higher investor interest by bridging the information gap between issuing firms and investors. Underwriters of restatement firms' offerings may also prefer the conventional book-building, as it gives them an opportunity to obtain more accurate price and demand information from potential investors and reduce underwriting risk. Therefore, we predict that firms with past restatements are less likely to choose the accelerated underwriting for their offerings.

To test this hypothesis, we extract from SDC all seasoned equity offerings by U.S. companies from 1997 to 2008 that are designated as block trade, bought deal, or accelerated book built by SDC. After imposing the same selection criteria as those in the beginning of Section II,

[10] Block trades and bought deals are similar; in both cases, issuing companies sell shares directly to an investment bank at an auction-determined or negotiated price with little or no book-building process, and the investment bank will then resell the shares to institutional investors. Accelerated book-built offerings are similar to conventional book-built offerings in that underwriters gather price and demand information and form syndicates, but they are executed much more rapidly. Please see Bartolotti et al. (2008) for more detailed descriptions of these offering methods.

we end up with 471 accelerated offers. Merging these deals with the sample of 2,337 firm-commitment offers creates a sample of 2,808 SEOs. Using this combined sample, we estimate a probit model where the dependent variable is equal to one for accelerated offers and zero otherwise. Table 10 presents the marginal effects of explanatory variables from probit regressions. In column (1), the key explanatory variable is the restatement dummy, and it has a negative but insignificant marginal effect. In column (2), we replace the restatement dummy with the error dummy and the irregularity dummy. We find that the error dummy has an insignificant effect on an issuer's choice of offering method, while the marginal effect of the irregularity dummy on the probability of an accelerated offering is negative and statistically significant with a *p*-value of 0.016. The irregularity dummy retains its significantly negative marginal effect when we drop the error dummy from the regression model in column (3). These results suggest that firms that restated due to irregularities are less likely to issue new shares in an accelerated offering. In economic terms, such restatements reduce the probability of an accelerated offering by about 5.7%, which is a rather meaningful effect since the unconditional probability of an accelerated offering is about 16%. In summary, the evidence from the probit model of offering method choices is consistent with the hypothesis that past restatements, in particular those caused by deliberate earnings manipulations, subject firms to reputational penalty that precludes them from taking advantage of faster and cheaper accelerated underwriting options for their SEOs.

With respect to control variables, their coefficient estimates are largely consistent with those found by Gao and Ritter (2010). Specifically, we find that issuers that are larger, have higher Tobin's Q, have more liquid stock, and are traded on NYSE are more likely to choose the accelerated approach, while issuers with higher stock return volatility and better operating performance and issuers trying to raise more proceeds and sell a higher percentage of secondary shares in the offerings are more likely to use traditional book building to float their shares.

As a robustness check, we repeat our earlier analyses using the combined sample that include both conventional and accelerated SEOs. All our results continue to hold.

H. Effect of restatements on SEO announcement returns

In this section we examine the effect of restatements on SEO announcement returns. Prior studies document that the market reaction to SEO announcements is on average negative and decreases with the information asymmetry between issuers and outside investors (Eckbo, Masulis, and Norli (2007)). Restatement firms are likely to face greater information asymmetry as investors perceive their financial reporting as less trustworthy. Therefore, we expect restatement firms to experience more negative abnormal returns upon SEO announcements.

For our analysis of announcement returns, we exclude offerings through shelf registrations. Shelf registrations allow an issuer to defer the equity offer till a much later date after shelf filings. Managers at the issuing firm can pick a date to offer shares within two years after the shelf filing date when they believe their company's stock is overvalued. As a result, there is little adverse selection problem around shelf filings. Consistent with this argument, Autore, Kumar, and Shome (2008) find that the average cumulative abnormal return (CAR) during the three-day window centered on the filing date for shelf offers is only -0.30% and not statistically different from zero. We have 1,228 non-shelf offers left after excluding SEOs through shelf registrations.

We calculate abnormal stock returns by subtracting the CRSP value-weighted market returns from a firm's daily returns.[11] We compute 3-day CARs during the window encompassed by event days (-1, +1), where event day 0 is the SEO announcement date. Studies on SEO announcement returns often use the SEO filing date as the announcement date. Kim and Purnanandam (2009) find that sometimes the initial announcement date in Factiva is different from the filing date recorded by SDC, but typically is off by no more than two trading days. To identify the correct announcement date, we use a correction procedure based on trading volume.

[11] We prefer this approach over the market model approach because the post-restatement announcement abnormal return patterns could bias the coefficient estimates of the market model. Our results, however, are robust to using the abnormal returns estimated from the market model.

Our assumption is that the trading volume immediately after the SEO announcement would be abnormally higher than the company's typical daily trading volume. Among the 5 trading days from 2 days before the filing date to 2 days after the filing date, we compare the date with the largest trading volume and the filing date. If they are different and the volume on the former date is more than twice the average daily volume over the previous 90 trading days, we pick the date with the largest trading volume as the announcement date. Otherwise, we treat the filing date provided by SDC as the correct announcement date.

The mean (median) three-day CAR is -1.73% (-1.86%), both significantly different from zero with *p*-values less than 0.001. These statistics are also similar to those reported in Lee and Masulis (2009) and Kim and Purnanandam (2009). Table 11 presents the results from OLS regressions of announcement returns. The dependent variable is the three-day CAR over the event window (-1, +1) in percentage points. Our key independent variable in column (1) is the indicator for restatements. We find that it has a negative coefficient estimate that is insignificant. In column (2), we replace the restatement dummy variable with the error dummy and irregularity dummy. We find that the coefficient of the error dummy is insignificant, but the indicator for irregularity restatements has a coefficient of -3.108 that is significant with a *p*-value of 0.040. In column (3), we only include the irregularity dummy, and its coefficient barely changes in both magnitude and statistical significance from column (2). It appears that ceteris paribus, the announcement returns of SEOs by irregularity restatement firms on average are significantly lower by over 3%. This is substantial considering the typical SEO announcement returns. Overall, the evidence on announcement returns suggests that the market reacts more negatively to SEO announcements made by firms that intentionally misreported financial statements. This supports our hypothesis that restatements due to intentional manipulation tarnish companies' reputation and increase the adverse selection problem faced by investors.

IV. Conclusion

We present evidence that firms with prior financial misreporting are subject to reputational penalties when contracting with outside parties. Specifically, investment banks charge significantly higher fees for underwriting SEOs of firms that restated their earnings due to deliberate manipulations, compared to issues by both these firms themselves prior to restatements and firms that have never restated earnings. The underwriting fee differential ranges from 10 to 20 percent in relative terms and 50 to 100 basis points in absolute terms. The reputational penalty borne by restatement firms in the form of higher underwriting fees is more pronounced for larger offerings and lessens as more time passes since the restatements and as firms make more corporate governance improvements. These findings are consistent with the hypothesis that intentional misrepresentation tarnishes firms' reputation by undermining the credibility of their future financial disclosure and reducing their appeal to potential capital providers. As a result, their seasoned equity offerings entail greater due diligence, certification, and placement efforts by underwriters and also expose underwriters to higher risk. Investment banks respond by demanding higher gross spreads as compensation for the additional work and risk involved.

Consistent with SEOs of restatement firms requiring more placement efforts by underwriters, we also find that these offerings are underwritten by significantly larger syndicates with more lead managers, and are less likely to be accelerated issues. Finally, our analysis of SEO announcement effects shows that restatement firms experience larger stock price drops. This represents a permanent loss in firm market value and adds to the higher SEO issuance costs restatement firms face.

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Table 1. Frequency of SEOs by offer year

The sample consists of 2,337 firm-commitment underwritten seasoned equity offerings (SEOs) by U.S. firms from 1997 to 2008. To be included in the sample, an SEO has to satisfy the following criteria: it is a firm-commitment offer; the size of the offering is at least $10 million; the offer price is no less than $5; the proportion of secondary shares offered is less than 100%; the issuer has financial statement information available from Compustat and stock return data CRSP. Rights issues, unit offerings, closed-end fund offerings, and simultaneous international offerings are also excluded.

Offer Year	Number of SEOs	Number of SEOs by restatement firms	Number of SEOs by firms that restated due to accounting errors	Number of SEOs by firms that restated due to intentional manipulation
1997	413	1	1	0
1998	214	2	2	0
1999	142	3	3	0
2000	137	3	2	1
2001	137	6	4	2
2002	157	11	9	2
2003	201	18	12	6
2004	252	34	28	6
2005	185	34	30	4
2006	188	32	27	5
2007	165	29	24	5
2008	146	29	20	9
Total	2337	202	162	40

Table 2. Summary Statistics

The sample consists of 2,337 firm-commitment underwritten seasoned equity offerings (SEOs) by U.S. firms from 1997 to 2008. To be included in the sample, an SEO has to satisfy the following criteria: it is a firm-commitment offer; the size of the offering is at least $10 million; the offer price is no less than $5; the proportion of secondary shares offered is less than 100%; the issuer has financial statement information available from Compustat and stock return data CRSP. Rights issues, unit offerings, closed-end fund offerings, and simultaneous international offerings are also excluded.

	Full sample (N=2337)			SEOs by non-restatement firms (N=2135)		SEOs by restatement firms (N=202)		SEOs by firms that restated due to error (N=162)		SEOs by firms that restated due to intentional manipulation (N=40)	
	Mean	Median	Std	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Spread	0.049	0.050	0.012	0.050	0.050	0.045	0.048	0.045	0.049	0.044	0.044
Offering size ($ mil)	170	80	589	145	77	442	116	363	106	761	176
Relative offer size	0.225	0.177	0.271	0.226	0.181	0.217	0.145	0.231	0.145	0.159	0.143
No. of managers	3.998	4	2.662	3.892	3	4.980	4	4.660	4	5.275	5
No. of lead managers	1.428	1	0.760	1.398	1	1.748	1	1.611	1	2.300	2
Lead manager rank	7.745	8	1.299	7.727	8	7.990	8.367	7.951	8	8.152	8.619
Total assets ($ mil)	8126	381	85642	5633	356	34481	870	21316	711	87803	2036
Market cap ($ mil)	1811	497	10661	1508	475	5013	750	3402	708	11536	1464
Leverage	0.315	0.302	0.258	0.312	0.296	0.347	0.344	0.349	0.348	0.335	0.335
Tobin's q	2.550	1.507	2.948	2.606	1.513	1.962	1.456	2.066	1.499	1.537	1.264
ROA	-0.030	0.023	0.219	-0.032	0.024	-0.002	0.021	-0.013	0.020	0.042	0.026
Stock return volatility (%)	3.204	2.851	1.858	3.232	2.889	2.914	2.604	2.939	2.624	2.810	2.570
Share turnover (%)	0.591	0.392	0.658	0.566	0.377	0.862	0.664	0.867	0.674	0.843	0.655

Table 3. Regression analyses of gross spread

The sample consists of 2,337 firm-commitment underwritten seasoned equity offerings (SEOs) by U.S. firms from 1997 to 2008. The dependent variable is the log transformation of gross spread per share as a percent of the offer price. The key explanatory variable in column (1) is an indicator that is equal to one for SEOs by firms that have restated earnings at the time of the offering, regardless of whether the restatements are due to errors or irregularities. In column (2) and (3), the restatement dummy is replaced by an indicator for restatements due to errors (i.e. unintentional misstatements) and an indicator for restatements due to irregularities (i.e. deliberate misreporting). Definitions of other explanatory variables are in the Appendix. In parentheses are *p*-values based on standard errors adjusted for heteroskedasticity (White (1980)) and issuer clustering. ***, **, and * stand for statistical significance based on two-sided tests at the 1%, 5%, and 10% level, respectively. Year and industry fixed effects are included in the first two regressions, while year and issuer fixed-effects are included in the third regression.

	(1) OLS	(2) OLS	(3) Issuer fixed-effects
Restatement	-0.025		
	(0.479)		
Restatement due to error		-0.054	-0.086
		(0.188)	(0.345)
Restatement due to irregularity		0.099***	0.192**
		(0.002)	(0.030)
Log(Principal amount)	-0.026*	-0.026*	0.023
	(0.072)	(0.072)	(0.539)
Log(Total assets)	-0.078***	-0.079***	-0.107***
	(0.000)	(0.000)	(0.007)
Leverage	-0.001	0.002	0.067
	(0.983)	(0.970)	(0.588)
Tobin's q	-0.014***	-0.014***	-0.017**
	(0.000)	(0.000)	(0.034)
ROA	-0.029	-0.030	0.050
	(0.190)	(0.173)	(0.609)
Stock return volatility	0.012**	0.013**	-0.008
	(0.019)	(0.017)	(0.515)
Share turnover	-0.023*	-0.022*	-0.005
	(0.065)	(0.070)	(0.910)
NYSE listing	-0.066**	-0.064**	0.117
	(0.020)	(0.022)	(0.266)
Shelf registration	-0.059***	-0.059***	0.040
	(0.002)	(0.002)	(0.457)
Lead manager rank	-0.010	-0.009	-0.003
	(0.110)	(0.127)	(0.909)
Percentage of secondary shares	-0.026	-0.023	-0.017
	(0.273)	(0.325)	(0.815)
Number of observations	2,337	2,337	2,337
Adjusted-R^2	0.274	0.276	0.282

Table 4. The effect of restatements on gross spread – Cross-sectional variation along offering size and time lapse since restatement

The sample consists of 2,337 firm-commitment underwritten seasoned equity offerings (SEOs) by U.S. firms from 1997 to 2008. The dependent variable is the log transformation of gross spread per share as a percent of the offer price. Definitions of explanatory variables are in the Appendix. In parentheses are *p*-values based on standard errors adjusted for heteroskedasticity (White (1980)) and issuer clustering. ***, **, and * stand for statistical significance based on two-sided tests at the 1%, 5%, and 10% level, respectively. Year and industry fixed effects are included in all regressions.

	(1) OLS	(2) OLS
Irregularity restatement * Indicator for SEOs with relative offer size above sample median	0.149***	
	(0.002)	
Irregularity restatement * Indicator for SEOs with relative offer size below sample median	0.053	
	(0.160)	
Irregularity restatement * Indicator for restatements within the past 3 years		0.157***
		(0.001)
Irregularity restatement * Indicator for restatements over 3 years ago		0.034
		(0.351)
Log(Principal amount)	-0.034**	-0.034**
	(0.024)	(0.024)
Log(Total assets)	-0.075***	-0.075***
	(0.000)	(0.000)
Leverage	0.001	0.001
	(0.972)	(0.977)
Tobin's q	-0.014***	-0.014***
	(0.000)	(0.000)
ROA	-0.055**	-0.054**
	(0.014)	(0.015)
Stock return volatility	0.008	0.008
	(0.172)	(0.175)
Share turnover	-0.020	-0.020
	(0.102)	(0.102)
NYSE listing	-0.064**	-0.064**
	(0.015)	(0.016)
Shelf registration	-0.061***	-0.062***
	(0.001)	(0.001)
Lead manager rank	-0.012**	-0.012**
	(0.042)	(0.042)
Percentage of secondary shares	-0.026	-0.026
	(0.259)	(0.246)
Number of observations	2,337	2,337
Adjusted-R^2	0.275	0.276

Table 5. The effect of restatements on gross spread – Cross-sectional variation along corporate governance improvements

The sample consists of 2,337 firm-commitment underwritten seasoned equity offerings (SEOs) by U.S. firms from 1997 to 2008. The dependent variable is the log transformation of gross spread per share as a percent of the offer price. Definitions of explanatory variables are in the Appendix. In parentheses are *p*-values based on standard errors adjusted for heteroskedasticity (White (1980)) and issuer clustering. ***, **, and * stand for statistical significance based on two-sided tests at the 1%, 5%, and 10% level, respectively. Year and industry fixed effects are included in all regressions.

	(1) OLS	(2) OLS
Restatement due to irregularity	0.147***	0.168***
	(0.000)	(0.000)
Irregularity restatement * Change in the percentage of independent directors	-0.281**	
	(0.029)	
Irregularity restatement * Proportion of audit committee members who departed after restatement		-0.160*
		(0.052)
Log(Principal amount)	-0.026*	-0.026*
	(0.070)	(0.072)
Log(Total assets)	-0.079***	-0.079***
	(0.000)	(0.000)
Leverage	0.002	0.002
	(0.966)	(0.955)
Tobin's q	-0.014***	-0.014***
	(0.000)	(0.000)
ROA	-0.032	-0.033
	(0.149)	(0.148)
Stock return volatility	0.012**	0.012**
	(0.024)	(0.021)
Share turnover	-0.023*	-0.023*
	(0.058)	(0.060)
NYSE listing	-0.065**	-0.065**
	(0.022)	(0.022)
Shelf registration	-0.060***	-0.060***
	(0.001)	(0.001)
Lead manager rank	-0.010	-0.010
	(0.114)	(0.112)
Percentage of secondary shares	-0.021	-0.021
	(0.386)	(0.392)
Number of observations	2,337	2,337
Adjusted-R^2	0.275	0.275

Table 6. Controlling for issuer corporate governance

The sample used for column (1) consists of 425 firm-commitment underwritten seasoned equity offerings (SEOs) by U.S. firms from 1997 to 2008 that have information on antitakeover provisions from IRRC. The sample used for column (2) consists of 365 firm-commitment underwritten seasoned equity offerings (SEOs) by U.S. firms from 1997 to 2008 that have information on board characteristics from IRRC. The dependent variable is the log transformation of gross spread per share as a percent of the offer price. Definitions of explanatory variables are in the Appendix. In parentheses are *p*-values based on standard errors adjusted for heteroskedasticity (White (1980)) and issuer clustering. ***, **, and * stand for statistical significance based on two-sided tests at the 1%, 5%, and 10% level, respectively. Year and industry fixed effects are included in all regressions.

	(1) OLS	(2) OLS
Restatement due to error	-0.117	-0.074
	(0.215)	(0.475)
Restatement due to irregularities	0.188**	0.278***
	(0.018)	(0.004)
GIM index	0.007	
	(0.440)	
Board Size		0.012
		(0.295)
Percentage of independent directors		0.196
		(0.241)
CEO/Chairman duality		0.037
		(0.471)
Log(Principal amount)	0.018	0.070
	(0.714)	(0.199)
Log(Total assets)	-0.120***	-0.144***
	(0.000)	(0.000)
Leverage	0.195	0.015
	(0.162)	(0.928)
Tobin's q	-0.066***	-0.077***
	(0.002)	(0.003)
ROA	-0.116	-0.005
	(0.580)	(0.987)
Stock return volatility	0.038	0.029
	(0.271)	(0.541)
Share turnover	-0.003	-0.061
	(0.944)	(0.345)
NYSE listing	-0.051	-0.045
	(0.496)	(0.656)
Shelf registration	-0.082	-0.053
	(0.165)	(0.440)
Lead manager rank	-0.026	-0.039

	(0.253)	(0.140)
Percentage of secondary shares	0.197	0.017
	(0.184)	(0.881)
Number of observations	425	365
Adjusted-R^2	0.211	0.192

Table 7. Controlling for accruals quality measures

The sample in column (1) consists of 1,254 firm-commitment seasoned equity offerings (SEOs) by U.S. firms from 1997 to 2008 that have necessary data for estimating the pre-SEO abnormal accruals based on the modified Jones (1991) model. The sample in column (2) consists of 1,162 firm-commitment seasoned equity offerings (SEOs) by U.S. firms from 1997 to 2008 that have necessary data for estimating the Dechow-Dichev (2002) accruals quality measure. The dependent variable is the log transformation of gross spread per share as a percent of the offer price. Definitions of explanatory variables are in the Appendix. In parentheses are *p*-values based on standard errors adjusted for heteroskedasticity (White (1980)) and issuer clustering. ***, **, and * stand for statistical significance based on two-sided tests at the 1%, 5%, and 10% level, respectively. Year and industry fixed effects are included in all regressions.

	(1) OLS	(2) OLS
Restatement due to error	-0.033	-0.073
	(0.468)	(0.111)
Restatement due to irregularities	0.155***	0.085**
	(0.000)	(0.031)
Absolute value of discretionary accruals	0.033*	
	(0.060)	
Dechow-Dichev accruals quality measure		0.669***
		(0.000)
Log(Principal amount)	-0.019	-0.047**
	(0.304)	(0.025)
Log(Total assets)	-0.109***	-0.062***
	(0.000)	(0.000)
Leverage	0.088*	0.055
	(0.099)	(0.321)
Tobin's q	-0.017***	-0.021***
	(0.000)	(0.000)
ROA	-0.012	0.005
	(0.574)	(0.901)
Stock return volatility	-0.004	0.028***
	(0.606)	(0.002)
Share turnover	-0.020	-0.019
	(0.165)	(0.190)
NYSE listing	-0.061**	-0.098***
	(0.031)	(0.000)
Shelf registration	-0.004	-0.086***
	(0.868)	(0.000)
Lead manager rank	0.005	0.002
	(0.429)	(0.848)
Percentage of secondary shares	-0.004	0.007
	(0.861)	(0.860)

Number of observations	1,254	1,162
Adjusted-R^2	0.398	0.294

Table 8. Correcting for self-selection bias

The sample consists of 2,337 firm-commitment underwritten seasoned equity offerings (SEOs) by U.S. firms from 1997 to 2008. The dependent variable is the log transformation of gross spread per share as a percent of the offer price. IMR is the inverse Mills' ratio constructed based on the coefficient estimates of a probit model predicting the likelihood of a firm issuing seasoned equity in a given year. Definitions of explanatory variables are in the Appendix. In parentheses are *p*-values based on standard errors adjusted for heteroskedasticity (White (1980)) and issuer clustering. ***, **, and * stand for statistical significance based on two-sided tests at the 1%, 5%, and 10% level, respectively. Year and industry fixed effects are included in all regressions.

	OLS
Restatement due to irregularities	0.102***
	(0.001)
IMR	-0.223**
	(0.026)
Log(Principal amount)	-0.023
	(0.112)
Log(Total assets)	-0.080***
	(0.000)
Leverage	0.018
	(0.655)
Tobin's q	-0.014***
	(0.000)
ROA	-0.033
	(0.145)
Stock return volatility	0.012**
	(0.028)
Share turnover	-0.022*
	(0.067)
NYSE listing	-0.066**
	(0.020)
Shelf registration	-0.059***
	(0.002)
Lead manager rank	-0.009
	(0.118)
Percentage of secondary shares	-0.024
	(0.315)
Number of observations	2,337
Adjusted-R^2	0.275

Table 9. Regression analyses of underwriting syndicate size

The sample consists of 2,337 firm-commitment seasoned equity offerings (SEOs) by U.S. firms from 1997 to 2008. The dependent variable in column (1) and (2) is the number of all managers in an underwriting syndicate. The dependent variable in column (3) and (4) is the number of lead managers in an underwriting syndicate. The key explanatory variable in column (1) and (3) is an indicator that is equal to one for SEOs by firms that have restated earnings at the time of the offering. In column (2) and (4), the restatement dummy is replaced by an indicator for restatements due to errors (i.e. unintentional misstatements) and an indicator for restatements due to irregularities (i.e. deliberate misreporting Definitions for other explanatory variables are in the Appendix. In parentheses are *p*-values based on standard errors adjusted for heteroskedasticity (White (1980)) and issuer clustering. ***, **, and * stand for statistical significance based on two-sided tests at the 1%, 5%, and 10% level, respectively. Year and industry fixed effects are included in all regressions.

	Number of all managers		Number of lead managers	
	(1) OLS	(2) OLS	(3) OLS	(4) OLS
Restatement	0.052		-0.021	
	(0.833)		(0.749)	
Restatement due to error		-0.146		-0.124*
		(0.591)		(0.062)
Restatement due to irregularity		0.893*		0.415**
		(0.081)		(0.034)
Log(Principal amount)	1.374***	1.374***	0.198***	0.198***
	(0.000)	(0.000)	(0.000)	(0.000)
Log(Total assets)	-0.069	-0.081	0.038*	0.031*
	(0.416)	(0.339)	(0.056)	(0.095)
Leverage	-0.123	-0.107	0.121*	0.130**
	(0.627)	(0.674)	(0.058)	(0.041)
Tobin's q	0.002	0.002	-0.010**	-0.010**
	(0.893)	(0.892)	(0.019)	(0.020)
ROA	-0.058	-0.068	-0.029	-0.035
	(0.740)	(0.698)	(0.622)	(0.560)
Stock return volatility	-0.090*	-0.089*	0.021*	0.022*
	(0.075)	(0.079)	(0.093)	(0.080)
Share turnover	-0.113	-0.110	-0.047	-0.046
	(0.403)	(0.414)	(0.141)	(0.147)
NYSE listing	0.308**	0.318**	0.140***	0.145***
	(0.033)	(0.026)	(0.001)	(0.001)
Shelf registration	-0.101	-0.101	0.001	0.000
	(0.370)	(0.371)	(0.983)	(0.991)
Percentage of secondary shares	0.106	0.123	0.109**	0.118**
	(0.544)	(0.480)	(0.049)	(0.032)
Number of observations	2,337	2,337	2,337	2,337
Adjusted-R2	0.350	0.352	0.316	0.322

Table 10. Marginal effects from probit analyses of offering method choices

The sample consists of 2,337 firm-commitment seasoned equity offerings (SEOs) and 471 accelerated SEOs made by U.S. firms between 1997 and 2008. The dependent variable is equal to one for accelerated offerings and zero otherwise. The key explanatory variable in column (1) is an indicator that is equal to one for SEOs by firms that have restated earnings at the time of the offering. In column (2) and (3), the restatement dummy is replaced by an indicator for restatements due to errors (i.e. unintentional misstatements) and an indicator for restatements due to irregularities (i.e. deliberate misreporting). Definitions for other explanatory variables are in the Appendix. In parentheses are *p*-values based on standard errors adjusted for heteroskedasticity (White (1980)) and issuer clustering. ***, **, and * stand for statistical significance based on two-sided tests at the 1%, 5%, and 10% level, respectively. Year and industry fixed effects are included in all regressions.

	(1) Probit	(2) Probit	(3) Probit
Restatement	-0.025		
	(0.111)		
Restatement due to error		-0.016	
		(0.374)	
Restatement due to irregularity		-0.057**	-0.056**
		(0.016)	(0.018)
Log(Principal amount)	-0.049***	-0.049***	-0.049***
	(0.000)	(0.000)	(0.000)
Log(Total assets)	0.034***	0.035***	0.035***
	(0.000)	(0.000)	(0.000)
Leverage	0.004	0.004	0.004
	(0.866)	(0.881)	(0.870)
Tobin's q	0.007***	0.007***	0.007***
	(0.002)	(0.002)	(0.002)
ROA	-0.067**	-0.066**	-0.067**
	(0.020)	(0.023)	(0.022)
Stock return volatility	-0.015**	-0.015**	-0.015**
	(0.015)	(0.014)	(0.013)
Share turnover	0.025***	0.025***	0.025***
	(0.002)	(0.003)	(0.003)
NYSE listing	0.058***	0.057***	0.056***
	(0.000)	(0.001)	(0.001)
Percentage of secondary shares	-0.164***	-0.165***	-0.164***
	(0.001)	(0.001)	(0.001)
Number of observations	2,808	2,808	2,808
Pesudo-R^2	0.223	0.222	0.222

Table 11. Regression analyses of abnormal returns around SEO announcement dates

The sample consists of 1,228 non-shelf firm-commitment seasoned equity offerings (SEOs) by U.S. firms from 1997 to 2008. The dependent variable is the issuer's 3-day cumulative abnormal return in percentage points around the SEO announcement date. The key explanatory variable in column (1) is an indicator that is equal to one for SEOs by firms that have restated earnings at the time of the offering. In column (2) and (3), the restatement dummy is replaced by an indicator for restatements due to errors (i.e. unintentional misstatements) and an indicator for restatements due to irregularities (i.e. deliberate misreporting). Definitions for other explanatory variables are in the Appendix. In parentheses are *p*-values based on standard errors adjusted for heteroskedasticity (White (1980)) and issuer clustering. ***, **, and * stand for statistical significance based on two-sided tests at the 1%, 5%, and 10% level, respectively. Year and industry fixed effects are included in all regressions.

	(1) OLS	(2) OLS	(3) OLS
Restatement	-0.938		
	(0.335)		
Restatement due to error		-0.496	
		(0.654)	
Restatement due to irregularity		-3.108**	-3.068**
		(0.040)	(0.042)
Log(Principal amount)	0.379	0.386	0.385
	(0.364)	(0.356)	(0.357)
Log(Total assets)	-0.048	-0.043	-0.042
	(0.856)	(0.872)	(0.876)
Leverage	0.360	0.358	0.345
	(0.755)	(0.757)	(0.766)
Tobin's q	0.027	0.025	0.026
	(0.828)	(0.839)	(0.834)
ROA	1.755	1.773	1.768
	(0.332)	(0.328)	(0.329)
Stock return volatility	0.263	0.266	0.264
	(0.237)	(0.232)	(0.236)
NYSE listing	0.118	0.111	0.107
	(0.835)	(0.845)	(0.850)
Lead manager rank	0.100	0.098	0.096
	(0.607)	(0.616)	(0.621)
Percentage of secondary shares	-1.950**	-1.978**	-1.968**
	(0.040)	(0.037)	(0.038)
Number of observations	1,228	1,228	1,228
Adjusted-R^2	0.001	0.001	0.001

Appendix: Variable Definitions

Variable	Definition
Restatement	Dummy variable: 1 for firms that restated earnings prior to the SEO, 0 otherwise.
Restatement due to errors	Dummy variable: 1 for restatements due to unintentional errors, 0 otherwise.
Restatement due to irregularities	Dummy variable: 1 for restatements due to intentional manipulations, 0 otherwise.
Gross spread	Underwriting fee per share divided by the SEO offer price.
CAR(-1,+1)	Three-day cumulative abnormal return (in percentage) surrounding the SEO announcement calculated by subtracting the CRSP value-weighted returns from a firm's daily returns.
Offer size	Log of principal amount (in $ mil) offered.
Relative offer size	Number of shares offered divided by number of shares outstanding
Shelf registrations	Dummy variable: 1 for shelf offers, 0 otherwise.
Lead manager reputation	The Carter and Manaster (1990) ranking updated by Jay Ritter.
Firm size	Log of book value of total assets (data6)
Tobin's Q	Market value of assets over book value of assets: (data6-data60+data25*data199)/data6
Leverage	Book value of debts (data34+data9) over book value of assets (data6)
ROA	Net income (data 172) over book value of assets (data 6)
Share turnover	The ratio of the average daily trading volume during the 250 trading days prior to the offer date over existing shares outstanding.
Stock return volatility	The standard deviation of daily stock returns during the 250 trading days prior to the offer date.
NYSE listing	Dummy variable: 1 for firms listed on the NYSE, 0 otherwise.